

REMARKS

Claim 1 is amended to more clearly define the claimed invention. Claims 8-10 are amended to correct typographical errors. The Applicant respectfully submits that no new matter is added. It is believed that this response is fully responsive to the Office Action dated October 6, 2003.

The present claimed invention is a method for in-line heat treating of steel wire and bar product stock of varying cross sections and compositions, which is hot rolled in a rolling mill. The method includes the following combined steps, which are conducted in-line with the rolling mill: cutting the rolled stock into pieces of predetermined length; quenching the pieces of hot rolled stock in a quenching box; in preparation for tempering of the quenched stock, preparing at least one layer of a predetermined number of cut pieces of stock in a layers preparation zone, with use of a layers preparation system, wherein the number of cut pieces of stock per layer depends on the section of the rolled stock; tempering the prepared layer(s) of stock arranged in one or more level(s) in an in-line annealing furnace for controlled cooling, holding or heating of the layer(s) of stock for obtaining various metallurgical microstructures; separating and discharging the layer(s) from the one or more level(s) into individual pieces of quenched and tempered stock with use of a separating and discharging device; and cooling the quenched and tempered stock in a cooling bed. The items of equipment to carry out the heat treatment of the various steel wire and bar product stock are arranged in-line such that the heat treating steps and conditions are selectable in order to obtain the various desired metallurgical microstructures for the wire and bar product stock being heat treated while the wire and bar product stock is maintained in-line with the rolling mill .

Claims 1-10 are rejected under 35 USC §103 as being unpatentable over Bernshtein et al. (Fiz. Metal Metalloved – 1971). Reconsideration and removal of this rejection is respectfully

requested.

It is alleged in the office action that Bernshtein et al. discloses the features substantially as claimed and that the differences between the claims and the references are within the ordinary skill of one in the art.

It is respectfully submitted that Bernshtein et al. discloses processing conditions for heat treating steel plates. It is disclosed that the steel plates are hot rolled at 930 ° C. The plates are subsequently heated in a molten Pb bath to at least 880 ° C and quenched from a temperature of 880° C. The plates are then subjected to additional heat treating steps including tempering and cooling. The quenching step is obviously not carried out in-line following the hot rolling step, as heating the steel plates in Pb to at least 880° C prior to quenching would not be necessary if material from the hot rolling process was quenched in-line following exit from the hot rolling mill at approximately 930 ° C.

It is respectfully submitted that the present claimed invention is not described or suggested by Bernshtein et al. The feature of the present invention is a versatile in-line heat treating method whereby various steel wire and bar type products are heat treated to provide various metallurgical microstructures. All of the claimed steps are carried out while the work product is in-line with the hot rolling mill and the steps of the method are carried out on equipment which provides versatility in times and temperatures for the steps. The steps of preparing at least one layer with use of a layers preparation system, tempering in one or more layers of an annealing furnace, and separating and discharging from the one or more layers with use of a separating and discharging device, are all carried out in-line and the equipment for layering, separating, and discharging enable such versatility for differing wire and bar product in the heat treating method.

It is respectfully submitted that Bernshtein et al. does not teach or suggest such a versatile in-line heat treating method.

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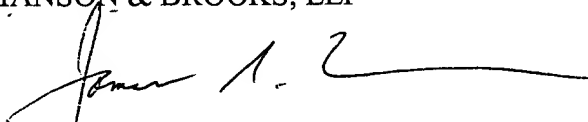
In view of the above discussion, removal of the rejection of Claims 1-10, over Bernshtein et al., is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 16-0485.

Respectfully submitted,

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Docket No.: 01044

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I hereby certify that, on December 30, 2003, the attached Amendment under 37 CFR §1.111 was deposited with the United States Postal Service as Express Mail utilizing the Express Mail Post Office to Addressee Service, postage pre-paid, addressed to:

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Commissioner for Patents
P.O. Box 1450
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Barbara A. Konopski
(Signature)

Barbara A. Konopski

December 30, 2003